

CAMERAS

Function: This section explains the requirements for interior and exterior cameras. Refer to the range narrative to clarify applicability of this section to a specific range type.

General Summary: Training ranges are divided into two groups: Integrated MOUT Training Systems (IMTS) and the standard training ranges. Camera coverage is a requirement for the IMTS in the Combined Arms Collective Training Facility (CACTF) and the Shoothouse. Training Circular (TC) 25-8 states there shall be 80% training building interior room camera coverage within 80% of the training buildings in the CACTF. Standard training ranges require downrange camera coverage in the Digital Multi Purpose Range Complex (DMPRC), Battle Area Complex (BAX), Digital Multi Purpose Training Range (DMPTR) and the Digital Air/Ground Integration Range (DAGIR).

Exterior Cameras: Camera towers for exterior cameras must be designed to minimize sway of the camera. The maximum acceptable amount of sway is 13mm (0.5 inch) in a 50 kph (30 mph) wind with a 3 foot cube weighing 14kg (30 lbs) centered on top. All camera towers or poles located downrange require a NEMA 4 rated camera data enclosure with back plate at a minimum size of 610mm (2.0')W x 914mm (3.0')H x 203mm (8.0")D, and a small NEMA 3R rated, 120/240V circuit breaker enclosure (4 single pole breaker spaces) with transient voltage surge suppression (TVSS). The circuit breaker enclosure shall feed the camera data enclosure receptacle and provide spare breakers for future loads on the camera tower such as a warning light atop the camera tower. The enclosures shall be mounted at the base of the pole or tower for the installation of power and fiber optic cabling. The power shall be supplied via the Power Center (PC) distribution panel. The power and data requirements shall be as follows:

a. Power.

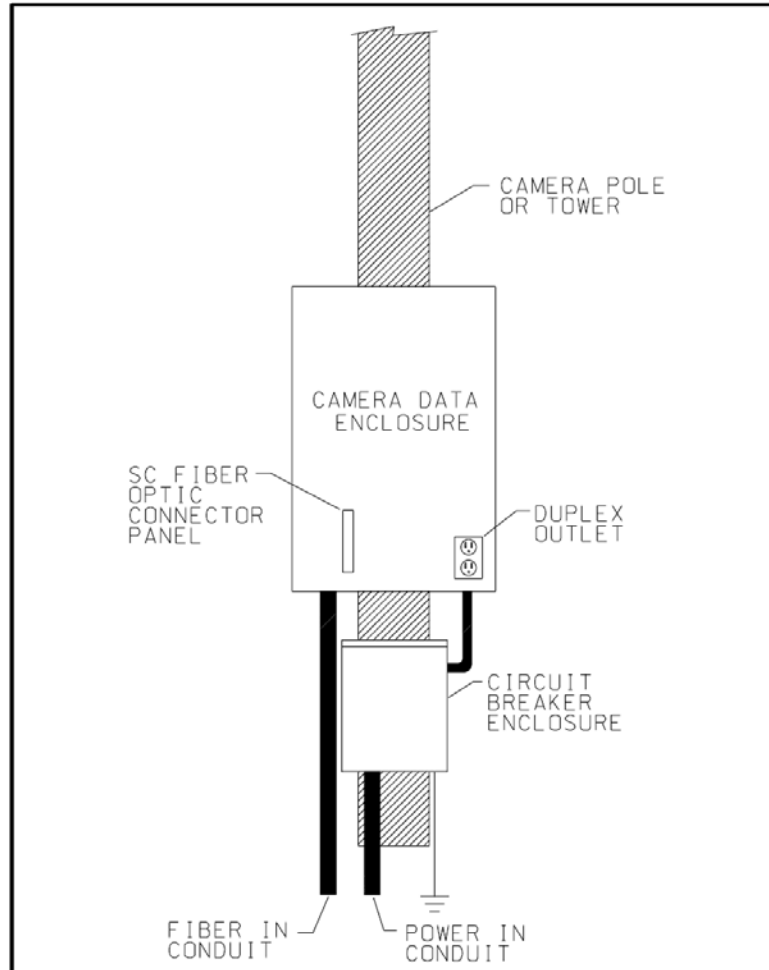
One – dedicated 120Vac, 20amp, duplex receptacle mounted on the back plate in the lower left-hand corner of the camera data enclosure.

b. Data.

One per camera – dedicated six-strand fiber optic cable from the Range Operations Center (ROC) to the camera tower or pole terminated in the data cable enclosure and tested on a surface mount SC patch panel for distribution. Some camera poles or towers may be provided with multiple cameras. Each camera requires a dedicated six-strand fiber optic cable.

When the camera is located in the CACTF training area, the cable may be routed via local electrical/communication room rack-mounted patch panels. The camera data enclosure patch panel shall be mounted on the back plate in the lower right-hand corner. If the total cable length exceeds 1000 meters, it shall consist of Single Mode (SM) optical

cable. If the total cable length is 1000 meters or less, it shall consist of Multi Mode (MM) optical cable.



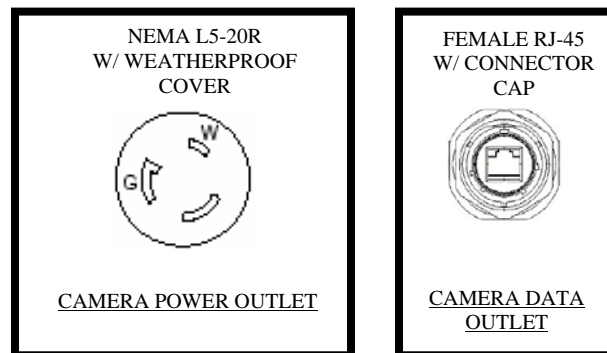
Example Exterior Camera Enclosure (Not to Scale)

Interior Cameras:

a. CACTF.

The cameras installed inside the CACTF training buildings are IP based cameras. A camera outlet shall include one NEMA L5-20R receptacle for camera power and one female RJ-45 outlet for camera data. All conduit and wiring devices for camera outlets shall be installed in rigid metallic bodies. All camera outlets shall be mounted at a minimum 2134 mm (7 ft) A.F.F. to the bottom of the outlet box. Conduits shall not be installed on the interior walls below 2134 mm (7 ft) A.F.F. The power receptacle shall be provided with an inuse cover, and the data outlet

shall be provided with a connector cap. The data for shall be provided via Category 6 Unshielded Twisted Pair (UTP) cables installed from the training building electrical room patch panel to each camera location, and power shall be provided from the distribution panel in training building electrical room to each camera location.



Typical Interior Camera Outlets (CACTF Only)

b. SHOOTHOUSE.

The camera outlets installed inside the Live Fire Shoothouse are OPA provided. This includes the power and data outlets, and all wire and conduit from the electrical room to the camera locations. The MCA responsibility is to provide four, 20 amp, single-pole breakers to power 12 cameras, and provide spare conduits through the electrical room wall to allow OPA installers a means to install power and data cables to the camera outlet locations.